



Cisco SFS 7000P Hardware Installation Guide

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Preface

This preface describes who should read the *Cisco SFS 7000P Hardware Installation Guide*, how it is organized, and its document conventions.

Audience

Only trained and qualified service personnel (as defined in IEC 60950 and AS/NZS3260) should install, replace, or service the equipment described in this publication.

Organization

This publication is organized as follows:

Chapter	Title	Description
Chapter 1	Product Overview	Provides an overview of the Cisco SFS 7000P switch features.
Chapter 2	Installing the Cisco SFS 7000P Switch	Describes how to install the switch in a rack.
Chapter 3	Installing Field Replaceable Units	Describes how to install and remove field-replaceable units (FRUs) on the switch.
Chapter 4	Managing the Cisco SFS 7000P Switch	Provides upgrade procedures for switch components.
Chapter 5	Hardware Diagnostic Tests	Describes how to monitor switch performance.
Appendix A	Specifications and Compliance Certifications	Provides specifications and compliance information.

Conventions

This publication uses the following conventions:

Convention	Description
boldface font	Commands, command options, and keywords are in boldface .
<i>italic</i> font	Arguments for which you supply values are in <i>italics</i> .
[]	Elements in square brackets are optional.
{ x y z }	Alternative keywords are grouped in braces and separated by vertical bars.
[x y z]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.

Convention	Description
screen font	Terminal sessions and information the system displays are in screen font.
boldface screen font	Information you must enter is in boldface screen font .
<i>italic screen font</i>	Arguments for which you supply values are in <i>italic screen font</i> .
^	The symbol ^ represents the key labeled Control. For example, the key combination ^D in a screen display means hold down the Control key while you press the D key.
< >	Nonprinting characters, such as passwords, are in angle brackets.

Notes use the following conventions:

**Note**

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the publication.

Cautions use the following conventions:

**Caution**

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.

Warnings use the following conventions:

Statement 1071—Warning Definition



Warning

IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device.

SAVE THESE INSTRUCTIONS

Waarschuwing

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwingssymbool betekent gevaar. U verkeert in een situatie die lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken, dient u zich bewust te zijn van de bij elektrische schakelingen betrokken risico's en dient u op de hoogte te zijn van de standaard praktijken om ongelukken te voorkomen. Gebruik het nummer van de verklaring onderaan de waarschuwing als u een vertaling van de waarschuwing die bij het apparaat wordt geleverd, wilt raadplegen.

BEWAAR DEZE INSTRUCTIES

Varoitus

TÄRKEITÄ TURVALLISUUSOHJEITA

Tämä varoitusmerkki merkitsee vaaraa. Tilanne voi aiheuttaa ruumiillisia vammoja. Ennen kuin käsittelet laitteistoa, huomioi sähköpiirien käsittelymiseen liittyvät riskit ja tutustu onnettomuuksien yleisiin ehkäisytapoihin. Turvallisuusvaroitusten käännökset löytyvät laitteen mukana toimitettujen käännettyjen turvallisuusvaroitusten joukosta varoitusten lopussa näkyvien lausuntonumeroiden avulla.

SÄILYTÄ NÄMÄ OHJEET

Attention IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS**Warnung WICHTIGE SICHERHEITSHINWEISE**

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.**Avvertenza IMPORTANTI ISTRUZIONI SULLA SICUREZZA**

Questo simbolo di avvertenza indica un pericolo. La situazione potrebbe causare infortuni alle persone. Prima di intervenire su qualsiasi apparecchiatura, occorre essere al corrente dei pericoli relativi ai circuiti elettrici e conoscere le procedure standard per la prevenzione di incidenti. Utilizzare il numero di istruzione presente alla fine di ciascuna avvertenza per individuare le traduzioni delle avvertenze riportate in questo documento.

CONSERVARE QUESTE ISTRUZIONI

Advarsel VIKTIGE SIKKERHETSINSTRUKSJONER

Dette advarselssymbolet betyr fare. Du er i en situasjon som kan føre til skade på person. Før du begynner å arbeide med noe av utstyret, må du være oppmerksom på farene forbundet med elektriske kretser, og kjenne til standardprosedyrer for å forhindre ulykker. Bruk nummeret i slutten av hver advarsel for å finne oversettelsen i de oversatte sikkerhetsadvarslene som fulgte med denne enheten.

TA VARE PÅ DISSE INSTRUKSJONENE**Aviso INSTRUÇÕES IMPORTANTES DE SEGURANÇA**

Este símbolo de aviso significa perigo. Você está em uma situação que poderá ser causadora de lesões corporais. Antes de iniciar a utilização de qualquer equipamento, tenha conhecimento dos perigos envolvidos no manuseio de circuitos elétricos e familiarize-se com as práticas habituais de prevenção de acidentes. Utilize o número da instrução fornecido ao final de cada aviso para localizar sua tradução nos avisos de segurança traduzidos que acompanham este dispositivo.

GUARDE ESTAS INSTRUÇÕES**¡Advertencia! INSTRUCCIONES IMPORTANTES DE SEGURIDAD**

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES

Varning! VIKTIGA SÄKERHETSANVISNINGAR

Denna varningssignal signalerar fara. Du befinner dig i en situation som kan leda till personskada. Innan du utför arbete på någon utrustning måste du vara medveten om farorna med elkretsar och känna till vanliga förfaranden för att förebygga olyckor. Använd det nummer som finns i slutet av varje varning för att hitta dess översättning i de översatta säkerhetsvarningar som medföljer denna anordning.

SPARA DESSA ANVISNINGAR**Figyelem FONTOS BIZTONSÁGI ELOÍRÁSOK**

Ez a figyelmeztető jel veszélyre utal. Sérülésveszélyt rejtő helyzetben van. Mielőtt bármely berendezésen munkát végezte, legyen figyelemmel az elektromos áramkörök okozta kockázatokra, és ismerkedjen meg a szokásos balesetvédelmi eljárásokkal. A kiadványban szereplő figyelmeztetések fordítása a készülékhez mellékelt biztonsági figyelmeztetések között található; a fordítás az egyes figyelmeztetések végén látható szám alapján kereshető meg.

ORIZZE MEG EZEKET AZ UTASÍTÁSOKAT!**Предупреждение ВАЖНЫЕ ИНСТРУКЦИИ ПО СОБЛЮДЕНИЮ ТЕХНИКИ БЕЗОПАСНОСТИ**

Этот символ предупреждения обозначает опасность. То есть имеет место ситуация, в которой следует опасаться телесных повреждений. Перед эксплуатацией оборудования выясните, каким опасностям может подвергаться пользователь при использовании электрических цепей, и ознакомьтесь с правилами техники безопасности для предотвращения возможных несчастных случаев. Воспользуйтесь номером заявления, приведенным в конце каждого предупреждения, чтобы найти его переведенный вариант в переводе предупреждений по безопасности, прилагаемом к данному устройству.

СОХРАНИТЕ ЭТИ ИНСТРУКЦИИ

警告 重要的安全性说明

此警告符号代表危险。您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾提供的声明号码来找到此设备的安全性警告说明的翻译文本。

请保存这些安全性说明

警告 安全上の重要な注意事項

「危険」の意味です。人身事故を予防するための注意事項が記述されています。装置の取り扱い作業を行うときは、電気回路の危険性に注意し、一般的な事故防止策に留意してください。警告の各国語版は、各注意事項の番号を基に、装置に付属の「Translated Safety Warnings」を参照してください。

これらの注意事項を保管しておいてください。

Related Documentation

For instructions on installing and configuring Cisco SFS 7000P and 7008P switches, refer to these publications:

- *Cisco SFS 7008P Hardware Installation Guide*
- *Cisco SFS 7000P Switch Installation and Configuration Note*
- *Cisco SFS 7008P Switch Installation and Configuration Note*
- *Cisco SFS 7000 Series Product Family Chassis Manager User Guide*
- *Cisco SFS 7000 Series Product Family Element Manager User Guide*
- *Regulatory Compliance and Safety Information for the Cisco SFS 7000 Series Switches*

Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/techsupport>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

http://www.cisco.com/public/countries_languages.shtml

Product Documentation DVD

The Product Documentation DVD is a comprehensive library of technical product documentation on a portable medium. The DVD enables you to access multiple versions of installation, configuration, and command guides for Cisco hardware and software products. With the DVD, you have access to the same HTML documentation that is found on the Cisco website without being connected to the Internet. Certain products also have .PDF versions of the documentation available.

The Product Documentation DVD is available as a single unit or as a subscription. Registered Cisco.com users (Cisco direct customers) can order a Product Documentation DVD (product number DOC-DOCDVD= or DOC-DOCDVD=SUB) from Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

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Registered Cisco.com users may order Cisco documentation at the Product Documentation Store in the Cisco Marketplace at this URL:

<http://www.cisco.com/go/marketplace/>

Nonregistered Cisco.com users can order technical documentation from 8:00 a.m. to 5:00 p.m. (0800 to 1700) PDT by calling 1 866 463-3487 in the United States and Canada, or elsewhere by calling 011 408 519-5055. You can also order documentation by e-mail at tech-doc-store-mkpl@external.cisco.com or by fax at 1 408 519-5001 in the United States and Canada, or elsewhere at 011 408 519-5001.

Documentation Feedback

You can rate and provide feedback about Cisco technical documents by completing the online feedback form that appears with the technical documents on Cisco.com.

You can submit comments about Cisco documentation by using the response card (if present) behind the front cover of your document or by writing to the following address:

Cisco Systems
Attn: Customer Document Ordering
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

From this site, you will find information about how to:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories, security notices, and security responses for Cisco products is available at this URL:

<http://www.cisco.com/go/psirt>

To see security advisories, security notices, and security responses as they are updated in real time, you can subscribe to the Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed. Information about how to subscribe to the PSIRT RSS feed is found at this URL:

http://www.cisco.com/en/US/products/products_psirt_rss_feed.html

Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you have identified a vulnerability in a Cisco product, contact PSIRT:

- For Emergencies only—security-alert@cisco.com

An emergency is either a condition in which a system is under active attack or a condition for which a severe and urgent security vulnerability should be reported. All other conditions are considered nonemergencies.

- For Nonemergencies—psirt@cisco.com

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product (for example, GnuPG) to encrypt any sensitive information that you send to Cisco. PSIRT can work with information that has been encrypted with PGP versions 2.x through 9.x.

Never use a revoked or an expired encryption key. The correct public key to use

in your correspondence with PSIRT is the one linked in the Contact Summary section of the Security Vulnerability Policy page at this URL:

http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html

The link on this page has the current PGP key ID in use.

If you do not have or use PGP, contact PSIRT at the aforementioned e-mail addresses or phone numbers before sending any sensitive material to find other means of encrypting the data.

Obtaining Technical Assistance

Cisco Technical Support provides 24-hour-a-day award-winning technical assistance. The Cisco Technical Support & Documentation website on Cisco.com features extensive online support resources. In addition, if you have a valid Cisco service contract, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not have a valid Cisco service contract, contact your reseller.

Cisco Technical Support & Documentation Website

The Cisco Technical Support & Documentation website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, at this URL:

<http://www.cisco.com/techsupport>

Access to all tools on the Cisco Technical Support & Documentation website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>



Note

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support & Documentation website by clicking

the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests, or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—An existing network is down, or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operations are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of the network is impaired, while most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- The *Cisco Product Quick Reference Guide* is a handy, compact reference tool that includes brief product overviews, key features, sample part numbers, and abbreviated technical specifications for many Cisco products that are sold through channel partners. It is updated twice a year and includes the latest Cisco offerings. To order and find out more about the Cisco Product Quick Reference Guide, go to this URL:

<http://www.cisco.com/go/guide>

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- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

<http://www.cisco.com/packet>

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

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or view the digital edition at this URL:

<http://ciscoiq.texterity.com/ciscoiq/sample/>

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

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- Networking products offered by Cisco Systems, as well as customer support services, can be obtained at this URL:

<http://www.cisco.com/en/US/products/index.html>

- Networking Professionals Connection is an interactive website for networking professionals to share questions, suggestions, and information about networking products and technologies with Cisco experts and other networking professionals. Join a discussion at this URL:

<http://www.cisco.com/discuss/networking>

- World-class networking training is available from Cisco. You can view current offerings at this URL:

<http://www.cisco.com/en/US/learning/index.html>



Product Overview

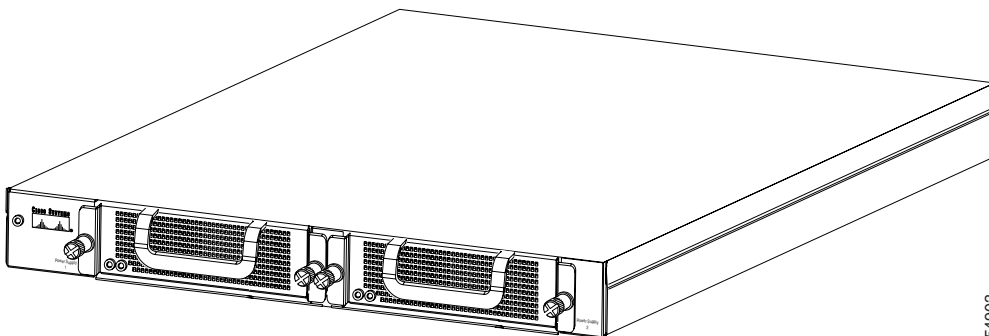
The Cisco SFS 7000P switch provides data center managers with a high-performance, low-latency interconnect.

- [Switch Description, page 1-1.](#)
- [System Features, page 1-3.](#)
- [Administrative Features, page 1-5.](#)

Switch Description

The Cisco SFS 7000P switch includes the features described in the following sections. See [Figure 1-1](#) for an illustration of the switch.

Figure 1-1 *Cisco SFS 7000P Switch*



Connectors

The Cisco SFS 7000P switch uses the following connectors:

- Twenty-four 10-Gbps 4x copper InfiniBand ports
- One 10/100 Ethernet RJ-45 management-Ethernet port for out-of-band management
- One RJ-45 console port used to configure and monitor the Cisco SFS 7000P switch

Switch Components

The following sections describe the Cisco SFS 7000P switch components.

LEDs

The Cisco SFS 7000P switch features the following LEDs:

- Chassis LEDs—Show overall system status, power status, and fan status. LEDs and their use are described in the [“Chassis Status LEDs” section on page 4-1](#).
- InfiniBand Port LEDs—Show link status, diagnostics, and network traffic. LEDs and their use are described in the [“LEDs” section on page 4-1](#).

Power Supplies and Fan Units

See the [“Installing a Power Supply or Fan Unit” section on page 3-2](#) for more information.

Power Supply Bay

The chassis provides dual independent IEC connectors, left- and right-justified.

Power Supplies and Fan Trays

The power supplies and fan trays have the following features:

- Redundant and hot-swappable

The replacement of any one power supply or fan tray does not disrupt the operation of the device, and can be successfully completed without removing the device from a rack or disconnecting any cables.

- Auto-ranging 90 to 264VAC, 47 to 63Hz
- Redundant, hot-swappable cooling

System Features

This section describes the Cisco SFS 7000P features.

InfiniBand Connectivity

The Cisco SFS 7000P switch can be used in a variety of networking environments, including database tiers, application tiers, and World Wide Web tiers. The Cisco SFS 7000P switch provides 10 Gbps connectivity to servers.

InfiniBand-enabled servers are automatically recognized as they are connected.

Scalability

The embedded subnet manager running on the Cisco SFS 7000P switch can manage up to 1,152 hosts.

High Availability

High availability operates at the hardware, port, and fabric level.

Hardware

The Cisco SFS 7000P switch features hot-swappable redundant power and cooling.

Ports

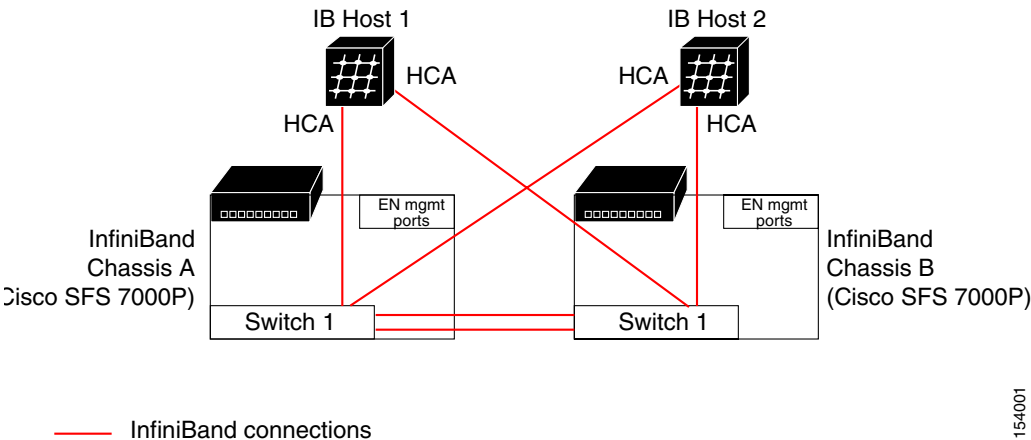
If any single InfiniBand port fails, none of the other ports will have interrupted service.

Fabric

For redundancy, InfiniBand host channel adapters can be dual-connected to a redundant pair of Cisco SFS 7000P switches.

In an InfiniBand fabric that includes more than one Cisco SFS 7000P switch, if the subnet manager on the Cisco SFS 7000P switch that is acting as the master fails, another subnet manager will take over within seconds. (See [Figure 1-2.](#))

Figure 1-2 Example of Redundant Cisco SFS 7000P InfiniBand Fabric



Nonblocking Architecture

The Cisco SFS 7000P switch provides nonblocking switch element architecture with full bisectional bandwidth for the switch chassis.

Administrative Features

The following sections describe the Cisco SFS 7000P administrative features.

Real-Time Clock

A real-time clock maintains correct time regardless of power conditions or connectivity.

Latency

The Cisco SFS 7000P switch has port to port latency of less than 200ns.

Nonvolatile Memory

The memory supports the following items:

- Three stored system images (not including recovery image)
- One week of log files at normal verbosity and one day of log files at maximum verbosity

Vital Product Data Storage

Vital product data is stored in nonvolatile memory in the system and the power supply and is available electronically. The following vital product data is accessible by the maintenance processor and made available to the RS-232 and Ethernet ports:

- Power-on hours

- Manufacturing part number
- Serial number
- Final test date
- Card ID
- Failure code
- Failure date
- Operation status
- Failure log
- OEM part number

Diagnostics

The following tests are used to determine operational status:

- Power-on self-test (POST) is performed on all system components and is required during power-on to determine operational readiness.
- Test to check the redundant components' operational status periodically during normal operation, including the logic required to perform the transition from faulted or primary to redundant component. The detection of an abnormal status is reported.
- Concurrent port loopback tests are available, including the capability to wrap an external signal from input port to output port.

Refer to [Chapter 5, “Hardware Diagnostic Tests,”](#) for more detailed information.



Installing the Cisco SFS 7000P Switch

This chapter describes how to install and manage the Cisco SFS 7000P switch hardware.

- [Safety, page 2-2](#)
- [Preparing for Installation, page 2-3](#)
- [Configuring Basic Connectivity, page 2-3](#)
- [Rack-Mounting the Cisco SFS 7000P Switch, page 2-5](#)
- [Connecting Network Devices, page 2-11](#)
- [Managing the System, page 2-15](#)



Warning

Ultimate disposal of this product should be handled according to all national laws and regulations. Statement 1040



Warning

This equipment must be installed and maintained by service personnel as defined by AS/NZS 3260. Incorrectly connecting this equipment to a general-purpose outlet could be hazardous. The telecommunications lines must be disconnected 1) before unplugging the main power connector or 2) while the housing is open, or both. Statement 1043



Warning

This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations. Statement 1045

**Warning**

During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself. Statement 93

Safety

**Warning**

Only trained and qualified personnel should be allowed to install, replace, or service this equipment. Statement 1030

**Warning**

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. Statement 1017

**Warning**

Before you install, operate, or service the system, read the *Site Preparation and Safety Guide*. This guide contains important safety information you should know before working with the system. Statement 200

**Warning**

Voltages that present a shock hazard can exist on inline power circuits if interconnections are made by using uninsulated exposed metal contacts, conductors, or terminals. Avoid using such interconnection methods unless the exposed metal parts are in a restricted access location and users and service people who are authorized to access the location are made aware of the hazard. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security.

Preparing for Installation

To safely and successfully prepare your environment for your Cisco SFS 7000P switch, you need to do the following:

- Check the contents of the switch package.
- Always use an approved ESD-preventative ankle or wrist strap.
- Make sure you have the right cables and sufficient ventilation.
- Prepare a management workstation, such as a PC running a terminal program, and a rollover M/F DB-9 serial cable (included).

Configuring Basic Connectivity

The following sections describe how to configure basic connectivity.

Attaching a Serial Console Cable to a PC or Terminal

To attach a serial console cable, follow these steps:

-
- Step 1** Connect the cable from the Cisco SFS 7000P serial console to your terminal or management workstation using the rollover serial cable. The cable is provided in the Cisco SFS 7000P package.

For detailed information on how to connect the serial console cable, see the documentation included with the serial cable kit.

- Step 2** Open a terminal emulation window using a program such as HyperTerminal for Windows. Set your terminal parameters to the following settings:
- Baud—9600 bps
 - Data Bits—8
 - Parity—None
 - Stop Bits—1
 - Flow control—None

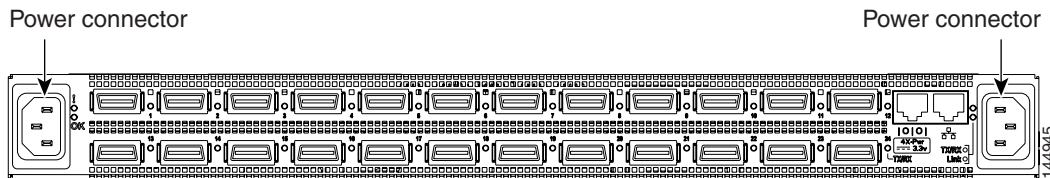
Powering Up the Chassis

When you power up the chassis, use only the power cable provided with your InfiniBand system.

To power up the chassis, follow these steps:

-
- Step 1** Remove the power cords from the shipping package.
- Two power cords are available: UL-rated, 10 amps and 125 VAC or greater.
- Step 2** Inspect the power cord and determine if it provides the proper plug and is appropriately certified for use with your electrical system. Discard the cord if it is inappropriate for your national electrical system and obtain the proper cord, as required by your national electrical codes or ordinances.
- Grounding is supplied by the ground prong on the three-prong power plug. Do not attach a separate ground cable and do not use adapter plugs. Do not remove the ground prong from the cable. Be sure that the ground connection on the power supply is correct and functioning before applying power to the switch.
- Step 3** Connect the power cords to the power connectors on the rear of the switch.
- The system will automatically boot up. You can watch the operation status by using the serial console.
- For power connector locations, see [Figure 2-1](#).

Figure 2-1 Power Connector Locations



- Step 4** Connect the other end of each AC power cable into a 90 to 264VAC power outlet operating at 47 to 63Hz.
- The switch automatically starts and boots up. Use the correct external power source. Attach the switch only to approved power sources, as indicated by the electrical ratings label. If you are unsure of the correct power-source to use, contact your support personnel or your local power company.

- Step 5** Check the LEDs on the front of the Cisco SFS 7000P system.
- When the system first powers up, it performs a power-on self test (POST). See the [“LEDs” section on page 4-1](#).
- Step 6** Log in and assign a network address after you see the login prompt.
- The default login is:
- super
-

For additional management information, see the *Command Line Interface Reference Guide*.

Rack-Mounting the Cisco SFS 7000P Switch

This section describes how to install the Cisco SFS 7000P switch in an equipment rack.

Requirements

In addition to the accessories provided with the switch, you should have:

- A number 2 Phillips screwdriver
- 12 screws and any associated mounting clips to secure the brackets to your rack (two for each rail of the rack).



Caution

Installing the rack to the system with screws other than the ones provided could be hazardous.

- We recommend that two people install the switch in a rack.



Note

The Cisco SFS 7000P switch weighs more than 22 pounds (10 kg).

Rack-Mounting the Switch

To rack-mount the Cisco SFS 7000P switch in a rack, follow these steps:

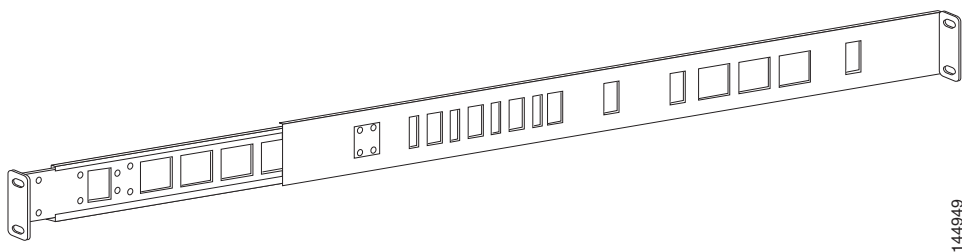
-
- Step 1** Remove the switch, rack brackets, CD-ROM, parts bag, and documentation from the box.
- Step 2** Place the switch on a secure, clean surface.
- Step 3** Open the plastic bag containing mounting parts.
- Step 4** Check the slot in the rack for sufficient clearance.
- Step 5** Determine the desired method of installation:
- [Installing the Switch with One Person, page 2-6](#)
 - [Installing the Switch with Two People, page 2-11](#)
-

Installing the Switch with One Person

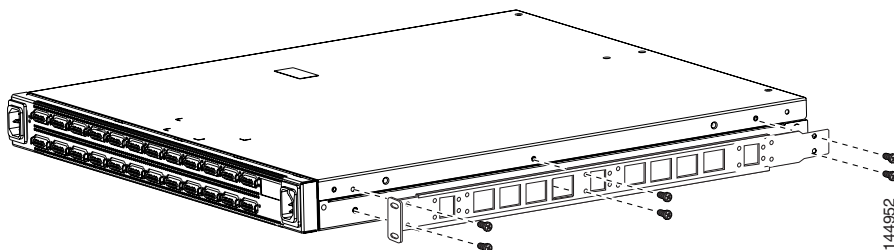
The following method of installation is easier with two people, but can be accomplished with one person. It can be difficult for only one person to align the switch correctly along the rack rails.

To install the switch with one person, follow these steps:

-
- Step 1** Separate one set of the rack brackets (see [Figure 2-2](#)).
- Each side is assembled to its counterpart, but should be separated before attaching to the switch when you use this method of installation.

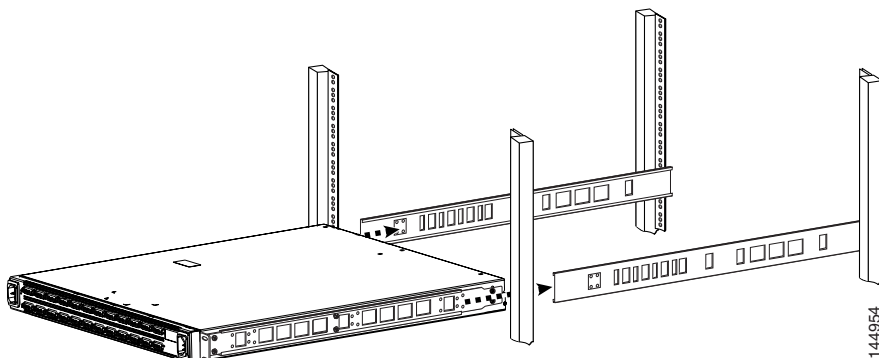
Figure 2-2 **Assembled Rack Brackets**

- Step 2** Attach the bracket that has the screw holes to the side of the switch with the flange facing away from the switch, as shown in [Figure 2-3](#).

Figure 2-3 **Attaching One Rail to Switch Chassis**

The standard method is to face the flange toward the front of the switch. However, you can also mount the flange toward the back if you want to mount the switch backward in the switch (service-side forward).

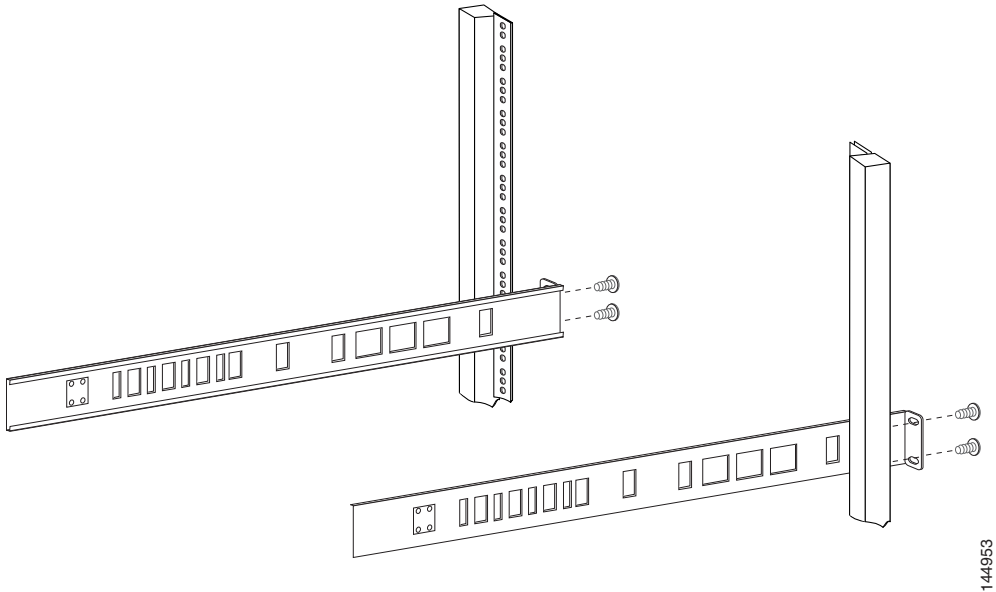
- Step 3** Repeat steps [Step 1](#) and [2](#) on the opposite side of the switch.
- The two counterparts to these sliding rack brackets (that do not have screw holes) should still be unattached.
- Step 4** Check the rack for clearance for the switch. The switch can be installed either directly on top of another device, or be suspended from the rack posts.
- Step 5** Attach the remaining two rack brackets to your rack.
- Position a bracket toward the back of the rack with the flange facing away from the rack. The flange should go around the outside of the rack post, as shown in [Figure 2-4](#).

Figure 2-4 *Holding Bracket Against Inside of Rack*

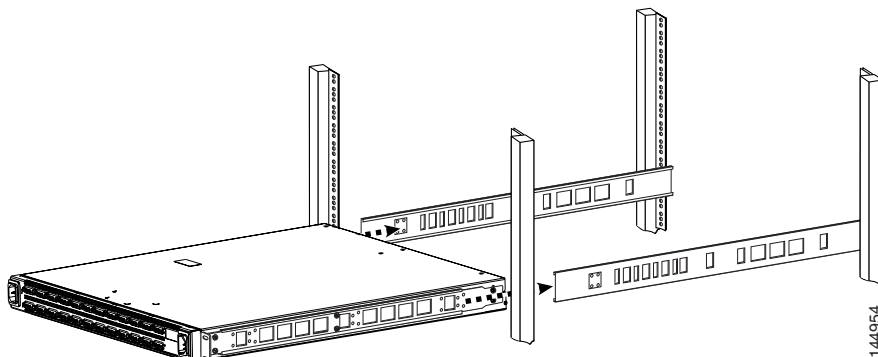
Note If you are rack-mounting the switch backward, the bracket should be installed to the front of the rack.

- b. Secure the bracket with your screws through the back of the rack, as shown in [Figure 2-5](#).
- c. Repeat on both sides of the rack.

Figure 2-5 *Secure Rail Bracket to Rack with Screws*

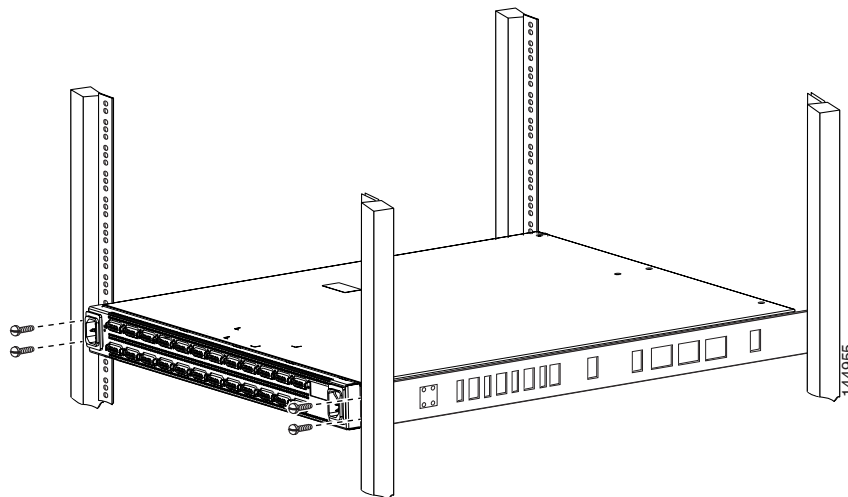


- Step 6** Lift the switch unit and align the brackets on the switch with the brackets in the rack before sliding the brackets together.
- Step 7** Carefully push the switch unit into the rack.
If the brackets do not slide easily, the alignment may be off. Pull the switch back toward you and realign the brackets.

Figure 2-6 *Sliding the Switch Into the Rack*

Step 8 Maintain at least six inches between the cooling vents and any obstructions.

Step 9 Secure the switch with your screws through the front of the rack, as shown in [Figure 2-7](#).

Figure 2-7 *Secure Switch with Screws through the Front of the Rack*

Installing the Switch with Two People

The following method of installation requires two people to mount the switch into the rack. One person holds the switch while another person secures it to the rack.

To install the switch with two people, follow these steps:

-
- Step 1** Separate the assembled rack brackets (see [Figure 2-2](#)).
- Step 2** Attach the rack bracket that has screw holes to the sides of the switch with the screws provided.
- When attaching the rack bracket, the flanges of the rack bracket should be facing away from the switch, as shown in [Figure 2-3](#).
- Step 3** Attach the rack brackets to their counterparts before inserting the switch into the rack.
- Step 4** Insert the switch into the rack with the rack bracket attached. You will have to tilt the switch unit to one side to avoid hitting the sides of the rack bracket with the brackets as they pass around the back rails.
- Return the switch unit to a horizontal position once the switch is inside the rack. The rear bracket flanges should wrap around the outside of the back rack post.
- Step 5** Have one person hold the switch while another person secures the switch to the rack.
- Step 6** Maintain at least six inches between the cooling vents and any obstructions.
- Step 7** Attach the rack bracket to the back of the rack posts with screws that fit your rack.
- Step 8** Attach the front rails to the front of the rack with screws that fit your rack, as shown in [Figure 2-7](#).

Connecting Network Devices

This section describes how to connect the InfiniBand system to other network devices. InfiniBand devices can be connected to InfiniBand-enabled servers.

The Cisco SFS 7000P switch supports the following types of connectors:

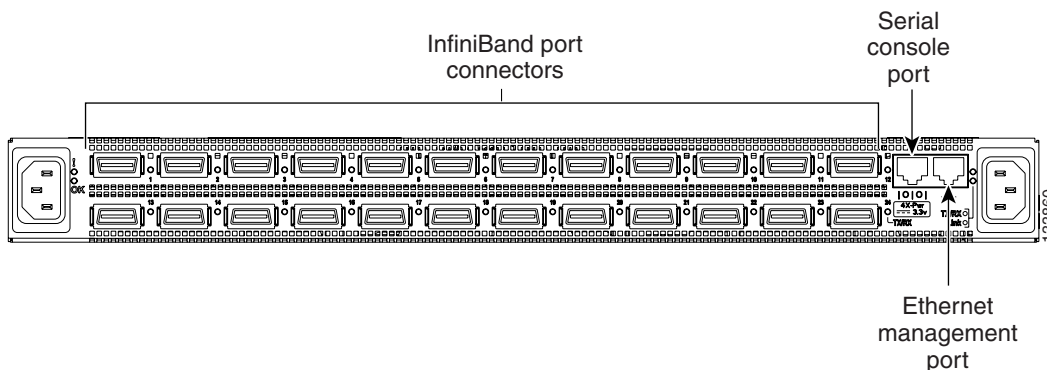
- Serial console port
- Ethernet Management port—RJ-45 jack for unshielded twisted-pair connections

- Switch card—4x 10 Gbps InfiniBand connectors

Connecting InfiniBand Devices

If you are using InfiniBand to connect to other workstations or switches, you will need standard 4x InfiniBand cables. InfiniBand cables can be used to connect any two InfiniBand devices, whether a switch or a host (see [Figure 2-8](#)).

Figure 2-8 *InfiniBand and Management Port Connections*



To connect InfiniBand devices, follow these steps:

-
- Step 1** Connect InfiniBand cables from the host to the InfiniBand switch.
- To connect in an InfiniBand cable, push the connector into the interface until you hear or feel a click. See [Figure 2-9](#) for an IB cable with a pinch connector. See [Figure 2-10](#) for an IB cable with a pull connector.

Figure 2-9 *IB Cable with Pinch Connector*

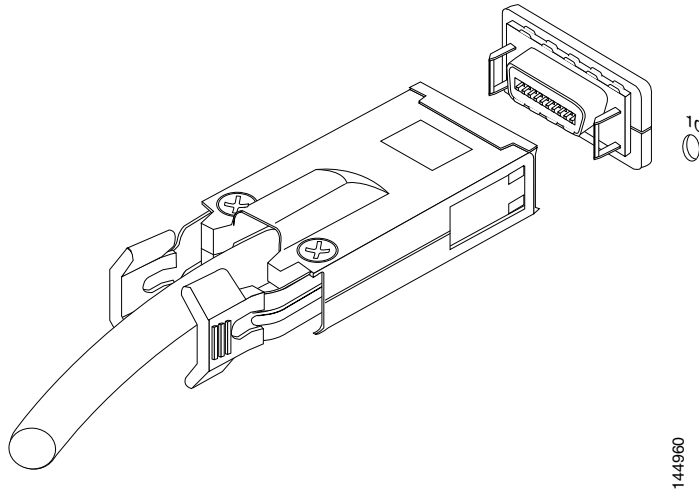
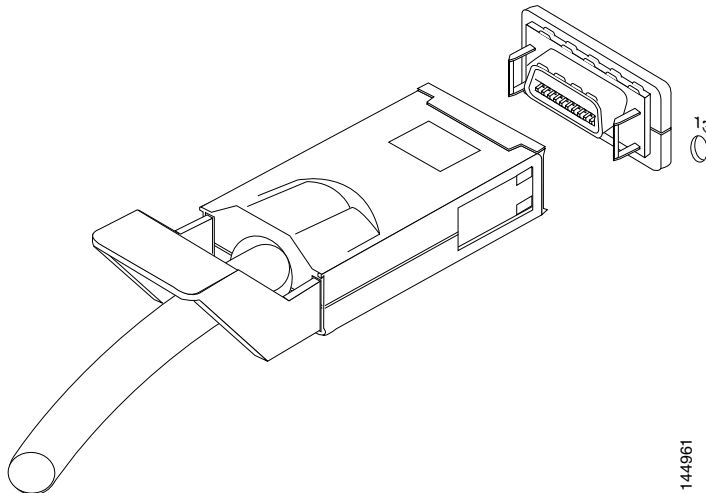


Figure 2-10 *IB Cable with Pull Connector*

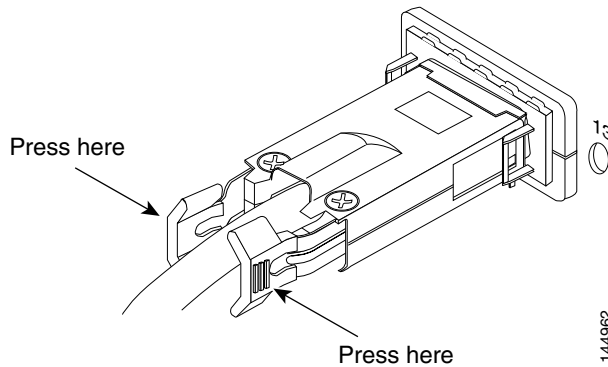


**Note**

If your host does not provide an ample amount of space around an IB port, double-check that your IB cable connector engages fully. Move your connector back and forth to be sure that both sides of the connector have locked firmly into place.

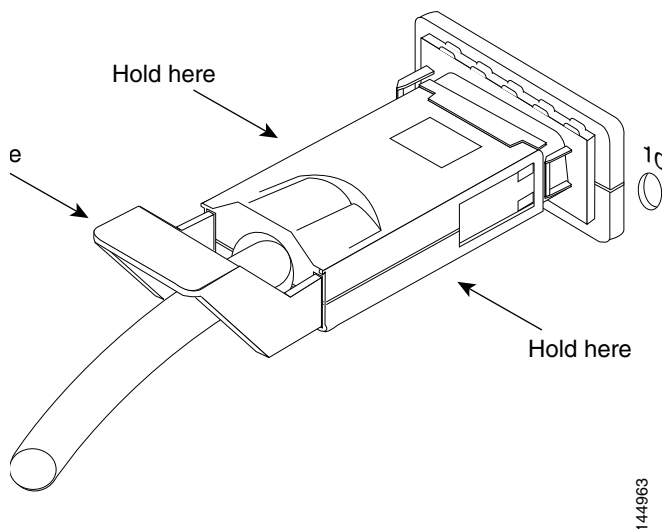
- b. To remove a cable with a pinch connector, pinch both sides of the back of the connector and pull the connector away from the port (see [Figure 2-11](#)).

Figure 2-11 **Removing a Pinch Connector**



- c. To remove a cable with a pull connector, grasp the connector with one hand and push it *toward* the port, then pull the latch away from the port with your other hand and gently move the connector back and forth and away from the port (see [Figure 2-12](#)).

Figure 2-12 **Removing a Pull Connector**



Connecting Management Devices

To connect the management ports, use either a serial cable or an Ethernet cable. For the location of the management ports, see [Figure 2-8](#).

Managing the System

You can manage the InfiniBand system using the following methods:

- Command-Line Interface (CLI) —A text-based interface accessible through a direct serial connection, Telnet over IP, or SSH over IP.
- Chassis Manager (GUI)—A web-based graphical user interface.
- Element Manager (GUI)—A graphical interface installed on a workstation, accessible over IP.

See the *Cisco SFS 7000 Series Product Family Chassis Manager User Guide*, the *Cisco SFS 7000 Series Product Family Element Manager User Guide*, and the *CLI Reference Guide* for more information about managing InfiniBand systems.



Installing Field Replaceable Units

This chapter describes how to install the following field replaceable units (FRUs) in the Cisco SFS 7000P switch:

- [Power and Fan Modules, page 3-1](#)
- [Installing a Power Supply or Fan Unit, page 3-2](#)
- [Removing Power Supplies and Fan Units, page 3-5](#)

Power and Fan Modules

The Cisco SFS 7000P power supplies and fan units are hot-swappable. You can add a second module without powering off the switch. If you have two power or fan units installed, you can remove one of them without removing power from the switch.

Locating the Power Supply or Fan Unit

Each power supply and fan unit is a single module. Both power or fan units are located on the front of the switch. When facing the front of the switch, the power modules are located in the left and right slots of the Cisco SFS 7000P switch.

Failed Power Supplies or Fan Units

The status of power supplies and fan units can be checked using the CLI, the Chassis Manager, or the Element Manager. The available information includes the status, the vital product data (VPD), the description of the error or an error code.

If you suspect that a power supply module has failed, check the LEDs (see the [“Power Supply and Fan LEDs” section on page 4-3](#)) and view the status through the Element Manager.

In most cases, vital information can be retrieved from the console port of management Ethernet port. See the [“Vital Product Data Storage” section on page 1-5](#).

Refer to the *Cisco SFS 7000 Series Product Family Chassis Manager User Guide* or *Cisco SFS 7000 Series Product Family Element Manager User Guide* for more information.

Installing a Power Supply or Fan Unit

**Caution**

Never place your hand inside an empty module bay or anywhere inside the Cisco SFS 7000P switch.

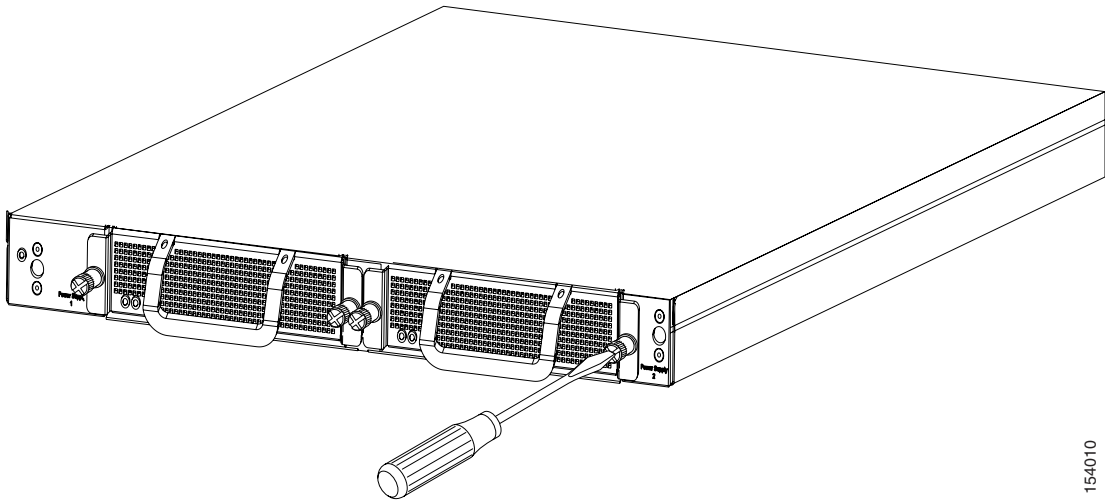
**Caution**

Unused module bays should always have a Cisco SFS 7000P filler panel over the bay to ensure proper safety, ventilation, and cooling.

To insert a power supply or fan unit, follow these steps:

-
- Step 1** Ground yourself appropriately.
 - Step 2** Remove the filler panel from the power supply bay with a number 1 Phillips screwdriver, if it is still in place (see [Figure 3-1](#)).

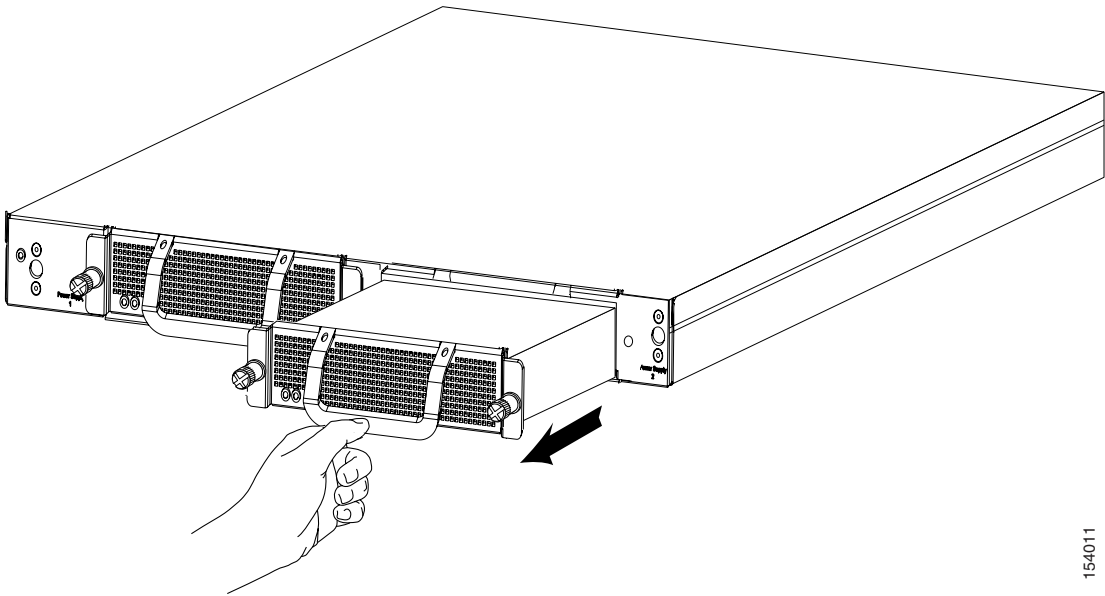
Figure 3-1 *Removing the Screws from the Power Supply*



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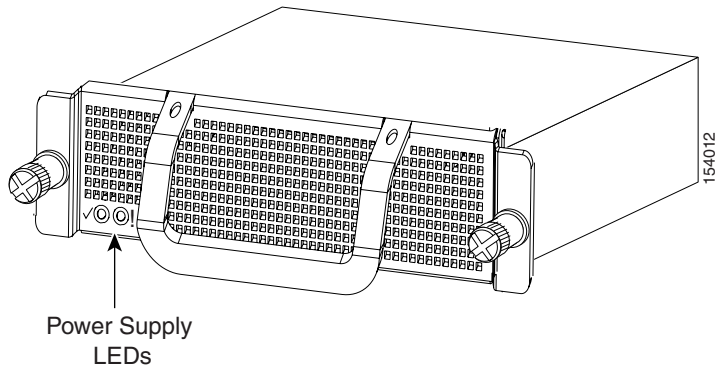
- Step 3** Remove the power supply or fan unit if one is in place (or “present”) by pulling on the black handle.

Figure 3-2 *Removing the Power Supply from the Switch*



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- Step 4** Insert the new power supply or fan unit into the open slot until it is fully seated. You may need to push the unit with your thumbs to get it completely into the bay.
- Step 5** Secure fasteners with a number 1 Phillips screwdriver.
- Step 6** Check the LEDs to verify the status of the module.
- For more information, see the [“Power Supply and Fan LEDs”](#) section on page 4-3.

Figure 3-3 Power Supply LEDs

Removing Power Supplies and Fan Units



Caution

Do not remove the power supply or fan unit without first removing the screws. Use a Phillips screw driver.

Step 1 Make sure you have a number 1 Phillips screwdriver to disengage the fasteners.

Step 2 Ground yourself appropriately.



Caution

Never place your hand inside an empty card or module bay or anywhere inside the Cisco SFS 7000P switch.

Step 3 Locate the power or fan unit that you want to remove.

If you have two power or fan units installed, you can remove one of them without removing power from the switch.

Step 4 Unscrew the fasteners that hold the power supply or fan unit in place.

Step 5 Pull the unit from the bay.

Step 6 Install the filler panel in place of the power or fan unit.

or

Install a new power supply or fan unit. If you are installing a new power supply or fan unit, see the [“Installing a Power Supply or Fan Unit” section on page 3-2](#).



Caution

Never operate the device without a filler panel or unit in place because the device might overheat.



Managing the Cisco SFS 7000P Switch

This chapter describes how to manage the Cisco SFS 7000P switch hardware.

- [LEDs, page 4-1](#)
- [Managing the System with Element Manager, page 4-3](#)
- [Displaying System Information, page 4-6](#)

LEDs

The Cisco SFS 7000P has the following types of LED indicators:

- [Chassis Status LEDs, page 4-1](#)
- [InfiniBand Port LEDs, page 4-2](#)
- [Power Supply and Fan LEDs, page 4-3](#)

Chassis Status LEDs

The front of the chassis has a single bi-color chassis status LED. See [Table 4-1](#) for information on interpreting the chassis status LED.

The rear of the chassis has one green and one yellow system status LED.

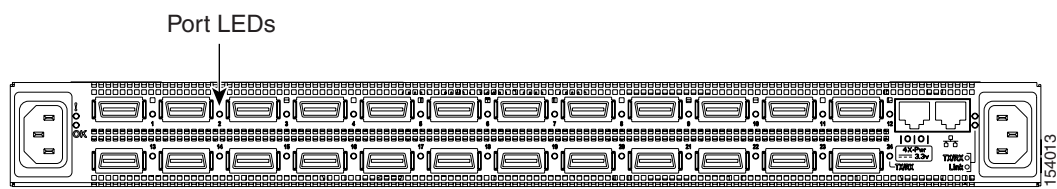
Table 4-1 Interpreting the Chassis Status LED

Color	Indication
Off	No system power or LED failure.
Yellow (solid)	Operator intervention required. An system error was detected, such as a fan error, a POST failure, or a power supply failure. The ! label (available on the back of the chassis) indicates a failure.
Yellow (blinking)	Initiated automatically during the LED test that follows the application of power (16 seconds).
Solid green	Indicates proper operation and no critical errors.

InfiniBand Port LEDs

The InfiniBand port LED is located next to each InfiniBand port. The InfiniBand LED represents the logical link and the logical link activity. For InfiniBandport LED locations, see [Figure 4-1](#).

Figure 4-1 InfiniBand Port LEDs Location



For information on interpreting the InfiniBand Port LED, see [Table 4-2](#).

Table 4-2 InfiniBand Port LED

Color	Indication
Off	Logical link has not been established.
Solid green	Logical link has been established.
Blinking green	Logical link was established with activity.

Power Supply and Fan LEDs

The power supply and fan unit LEDs are located on the bottom left corner of each power supply or fan unit. For the location of the LEDs, see [Figure 4-2](#). For LED descriptions, see [Table 4-3](#).

- The green LED is labeled with a checkmark.
- The yellow LED is labeled with an exclamation point (!).

Figure 4-2 *Power Supply and Fan LEDs Location*

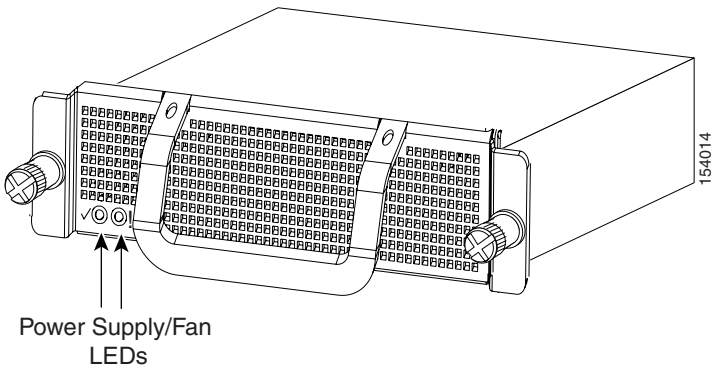


Table 4-3 *Power Supply and Fan Unit LEDs*

Color	Indication
Off	DC output failure.
Green (solid)	AC connected, DC output OK.
Yellow (off)	No failure on the power supply.
Yellow (solid)	Operator intervention required. Failure detected within the power supply.

Managing the System with Element Manager

For information regarding installing the Element Manager, refer to the *Cisco SFS 7000 Series Product Family Element Manager User Guide*.

To view the Health Status window, perform the following steps:

-
- Step 1** Launch the Element Manager.
- Step 2** Select **Health > Status**. The Health Status window opens. (See [Figure 4-3](#).)

Figure 4-3 *Health Status Window*



Using the Summary Tab

Use the **Summary** tab (See [Figure 4-3](#).) to view the status of the power, fans, and temperature sensors at once.

The Summary tab has the following fields:

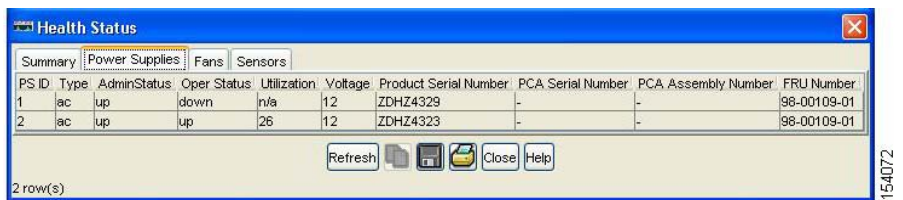
- Power
 - A green check indicates that at least one power source is connected and functioning properly.
 - A red check indicates that the power supply AC is disconnected.
- Fans
 - A green check indicates that at least one fan is present, and is functioning properly.
 - A red check indicates a fan failure.
- Sensors
 - A green check indicates that the system temperature is at an acceptable level.

- A red check indicates a high-temperature warning.

Using the Power Supplies Tab

Use the **Power Supplies** tab to view the operating status of the power supplies. (See [Figure 4-4](#).)

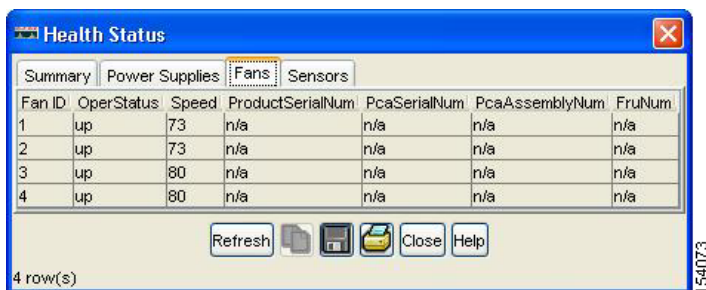
Figure 4-4 *Health Status Power Supplies Window*



Using the Fans Tab

Use the **Fans** tab to view the operating status of the fans. (See [Figure 4-5](#).)

Figure 4-5 *Health Status Fans Window*



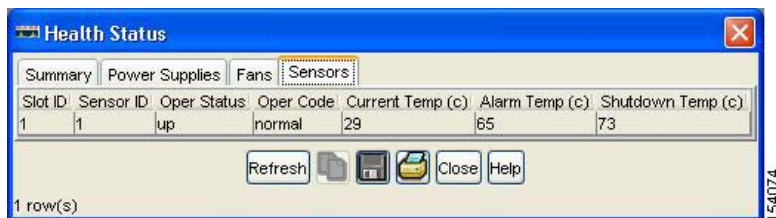
In the **OperStatus** field, a status of up indicates that the fan is operating correctly within the power or fan unit.

In the **Speed** field, the integer represents a percentage. The percentage changes based on the ambient temperature of the unit, and will increase as the temperature rises.

Using the Sensors Tab

Use the **Sensors** tab to view the operating status of the temperature sensor of the system. (See [Figure 4-6](#).)

Figure 4-6 *Health Status Sensors Window*



In the **OperStatus** field, a status of “up” indicates that the sensor is functioning properly.

In the **Temperature** field, the internal system temperature is displayed in Celsius. The system’s maximum external ambient temperature is 30 degrees Celsius (0 to 10,000 feet). Acceptable internal temperature ranges are 30 degrees Celsius above external ambient, plus 1 degree for every 1,000 feet above sea level. The system reboots at an internal temperature of 75 degrees Celsius.

A warning will appear if the temperature reaches 65 degrees Celsius (at sea level).

The system reboots at an internal temperature of 75 degrees Celsius (at sea level).

Displaying System Information

You can use CLI commands to monitor the power supplies, the fans, and the sensors.

Displaying Power Supply Information

To display information about the power supply, enter the **show power-supply** command.

```
SFS-7000P# show power-supply
=====
Power-supply Information
=====
ps      type      oper-status  utilization  voltage
-----
1       AC        up           50           12
2       AC        up           50           12

=====
Power-supply Seeprom
=====
ps      product      pca      pca      fru
serial-number serial-number number    number
-----
1       200000       820000   820000   1
2       200000       820000   820000   1
```

Displaying Fan Information

To display information about the fans, enter the **show fan** command.

An oper-status of up means that the fan is operating correctly within the power supply or fan unit.

In the **Speed** field, the integer in this field represents a percentage. The percentage changes based on the ambient temperature of the unit, and will increase as the temperature rises.

```
SFS-7000P# show fan
```

```
=====
Fan Information
=====
fan    oper-status  speed(%)
-----
1      up           73
2      up           73
3      up           73
4      up           73
```

```
=====
                        Fan Seeprom
=====
      product          pca          pca          fru
fan  serial-number    serial-number  number      number
-----
1
2
3
4
SFS-7000P#
```

Displaying Sensor Information

To display information about the sensors, enter the **show sensor** command.

```
SFS-7000P# show sensor

=====
                        Sensor Information
=====
sensor oper-status oper-code temperature(c) alarm-temp(c) shutdown-temp(c)
-----
1/1    up          normal      29          65          73

SFS-7000P#
```

In the **Temperature** field, the internal system temperature is displayed in Celsius. The system’s maximum external ambient temperature is 30 degrees Celsius (0 – 10,000 feet). Acceptable internal temperature ranges are 30 degrees Celsius above external ambient, plus 1 degree for every 1,000 feet above sea level.

A warning will appear if the temperature reaches 65 degrees Celsius (at sea level). The system reboots at an internal temperature of 75 degrees Celsius (at sea level).



Hardware Diagnostic Tests

This chapter describes how to run diagnostic tests on the Cisco SFS 7000P switch hardware. This chapter contains the following sections:

- [About Diagnostic Tests, page 5-1](#)
- [Displaying Hardware Errors, page 5-9](#)

About Diagnostic Tests

Hardware diagnostic tests can be performed through the CLI or the Element Manager GUI. For instructions on how to run test with the Java GUI, see the *Cisco SFS 7000 Series Product Family Element Manager User Guide*. A power-on self test (POST) is run automatically on various components at power-on.

The following sections refer to running tests and displaying test with the CLI. For complete diagnostic command information, refer to the *Command Line Reference Guide*.

LED Tests

LED tests allow you to set a particular LED to blink in a specific way so that you can more easily identify a specific component in a rack.

Self-Tests

The Cisco SFS 7000P switch provides the following diagnostic tests:

- Card Self-Test
- Fan Self-Test
- Power Supply Self-Test

Running Card Tests

The term “cards” in this section refers to fabric controllers, management I/O modules, node cards, and the chassis ID module. Fans and power supplies are not included in the card tests; they can be tested through the standard chassis test or as individual components.

The following tests are available to locate and diagnose one or more cards in the chassis:

- LED
- Self-test

Running a Card Self-Test

To perform a diagnostic self-test on a card, follow these steps:

Step 1 Enter the **diag card *number*** command.

```
SFS-7000P> enable
SFS-7000P# config
SFS-7000P(config)# diag card 11
SFS-7000P(config-diag-card-11)# test self-test
SFS-7000P(config-diag-card-11)# start
SFS-7000P(config-diag-card-11)# exit
SFS-7000P(config)# exit
```



Note

You can stop the diagnostic self-test at any time by entering the **stop** command.

Step 2 Exit the test to view the progress of the test.

The test takes approximately 5 to 8 minutes.

```
SFS-7000P# show diagnostic card 1
```

```
=====
                        Diagnostic Tests For Cards
=====
      test : self-test
      slot-id : 1
      iterations : 1
      action : start
      result : success
      percentage-completed : 100
      result-string : Card Test Completed, Final report :
      Passed=1, Failed=0, Total=1
```

Step 3 If the test fails, enter the **more syslog:hwif_log** command to see the log information.

Running Chassis Tests

The following tests are available to locate and diagnose the chassis:

- LED
- Standard
- Extended
- Extended Memory

Running a Chassis Standard Test

The chassis standard test runs a diagnostic test on all cards in the chassis. To perform a chassis standard test on a card, follow these steps:

Step 1 Start the test by entering the **diag chassis test standard** command and the **start** command.

```
SFS-7000P> enable
SFS-7000P# config
SFS-7000P(config)# diag chassis test standard
SFS-7000P(config-diag-chassis)# start
SFS-7000P(config-diag-chassis)#
```

Step 2 Display the status of the test by entering the **show diag chassis** command.

```
SFS-7000P(config-diag-chassis)# exit
SFS-7000P(config)# exit
SFS-7000P# show diag chassis
=====
Diagnostic Tests For Chassis
=====
module-type : chassis
module-number : 1
test : standard
iterations : 1
option : none
action : start
result : success
percentage-completed : 100
result-string : Standard System Test Completed, Final report :
Passed=1, Failed=0, Total=1
SFS-7000P#
```

Step 3 Display any errors on individual components by entering the **show diag post** command.

```
SFS-7000P-1# show diag post
=====
Post Status
=====
fru-slot      post-status    post-error
-----
card(1)       failed        _FRU_LIM_CARDTYPE_ERR
card(3)       failed        _FRU_SEEPROM_PROGRAM_ERR
card(5)       passed        none
card(6)       passed        none
card(7)       passed        none
card(8)       passed        none
card(9)       passed        none
card(11)      failed        _FRU_POWER_CONTROLLER_CONFIG_ERR
card(12)      passed        none
card(13)      passed        none
card(15)      passed        none
card(16)      passed        none
card(17)      passed        none
```

```
fan(1)           passed           none
```

Running Fan Tests

The following sections describes the fan module tests:

Running a Self-Test on a Fan

To perform a diagnostic self-test on a fan, follow these steps:

- Step 1** Identify the number of the fan you want to diagnose, if you do not already know the number.

Enter the **show fan** command.

```
SFS-7000P# show diagnostic fan
```

```
=====
                                Diagnostic Tests For Fan
=====
      module-type : fan
      module-number : 2
              test : self-test
      iterations : 1
              action : start
              result : success
      percentage-completed : 100
      result-string : Fan Self Test Completed, Final report :
      Passed=1, Failed=0, Total=1
```

- Step 2** Enter the **diag fan id** command.

```
SFS-7000P# config
SFS-7000P(config)# diag fan 1
SFS-7000P(config-diag-fan-1)# test self-test
SFS-7000P(config-diag-fan-1)# start
SFS-7000P(config-diag-fan-1)# exit
SFS-7000P(config)# exit
SFS-7000P# show diag fan
```

```
=====
                                Diagnostic Tests For Fan
=====
```

```

=====
module-type : fan
module-number : 1
test : self-test
iterations : 1
action : start
result : in-progress
percentage-completed : 70
result-string : Self Test, Current report : In progress...
SFS-7000P#

```

Step 3 Display the progress of the test by entering the **show diag fan** command.

```

SFS-7000P(config-diag-fan-1)# exit
SFS-7000P(config)# exit
SFS-7000P# show diag fan
=====
Diagnostic Tests For Fan
=====
module-type : fan
module-number : 1
test : self-test
iterations : 1
action : start
result : in-progress
percentage-completed : 70
result-string : Self Test, Current report : In progress...
SFS-7000P#

```

Step 4 Display any errors that appear in the result string by entering the **show diag fru-error** command.

```

SFS-7000P# show diag fru-error
=====
Fru-Error
=====
fru-slot      fru-error
-----
card(1)       none
card(2)       none
card(7)       none
card(8)       none
card(9)       none
card(10)      none
card(11)      none
card(12)      none
card(13)      none
card(14)      none
card(15)      none

```

```
card(17)          none
fan(1)            none
fan(2)            none
```

Step 5 Reboot the chassis when the self-test is complete.

```
SFS-7000P# reload
System configuration is modified. Save? [yes(default) | no | filename]
y
Proceed with reload? [yes(default) | no] y
```

Running Power Supply Tests

The following tests are available to locate and diagnose fan modules:

- LED
- Self-Test

Running a LED Test on the Power Supply

You can use the LED test to identify a specific power supply by entering these commands:

```
SFS-7000P> enable
SFS-7000P# config
SFS-7000P(config)# diag power-supply 1
SFS-7000P(config-diag-power-supply-1)# test led
SFS-7000P(config-diag-power-supply-1)# start
SFS-7000P(config-diag-power-supply-1)# stop
SFS-7000P(config-diag-power-supply-1)#
```

Running a Self-Test on a Power Supply

To perform a diagnostic self-test on a power supply, follow these steps:

Step 1 Determine the ID of the power supply that you want to diagnose, if you do not already know the number.

Enter the **show power-supply** command.

```
SFS-7000P# show power-supply
=====
Power-supply Information
=====
ps      type      admin-status  oper-status  utilization  voltage
-----
1       AC        up            up           n/a          48
2       AC        up            up           15           47
```

Step 2 Specify the type of test (self-test is chosen by default) by entering the **diag power-supply id** command.

```
SFS-7000P> enable
SFS-7000P# config
SFS-7000P(config)# diag power-supply 2
SFS-7000P(config-diag-power-supply-2)# test self-test
```

Step 3 Start the test.

```
SFS-7000P(config-diag-power-supply-2)# start
```

Step 4 Display the progress of the test by entering the **show diag fan** command.

```
SFS-7000P(config-diag-power-supply-2)# exit
SFS-7000P(config)# exit
SFS-7000P# show diagnostic power-supply
=====
Diagnostic Tests For Power Supply
=====
module-type : power-supply
module-number : 2
test : self-test
iterations : 1
action : start
result : success
percentage-completed : 100
result-string : Power Supply Self Test Completed, Final
report : Passed=1, Failed=0, Total=1
```

Step 5 Display any errors that appear in the result string by entering the **show diag fru-error** command.

```
SFS-7000P# show diag fru-error
=====
Fru-Error
=====
```

```

fru-slot      fru-error
-----
card(9)       none
card(10)      none
card(11)      none
card(12)      none
card(13)      none
card(14)      none
card(15)      none
card(17)      none
fan(1)        none
fan(2)        none
fan(3)        none
fan(4)        none
power-supply(1) none
power-supply(2) none
SFS-7000P#

```

Step 6 Reboot the chassis when the self-test is complete.

```

SFS-7000P# reload
System configuration is modified. Save? [yes(default) | no | filename]
y
Proceed with reload? [yes(default) | no] y

```

Displaying Hardware Errors

To display POST results, non-fatal errors that can be recovered, informational logging (such as firmware updates), and hardware errors:

To display hardware errors, follow these steps:

Step 1 Locate the /topspin/log/hwif_log file by entering the **more syslog:hwif_log** command.

```

SFS-7000P> enable
SFS-7000P# more syslog:hwif_log
Thu Mar 4 10:57:49 2004: POST: SEEPROM: PASSED
Thu Mar 4 10:57:49 2004: POST: FPGA: PASSED
Thu Mar 4 10:57:49 2004: POST: SUMMIT: PASSED
Thu Mar 4 10:57:50 2004: POST: RTC: PASSED
Thu Mar 4 10:57:54 2004: POST: FAN: PASSED
Thu Mar 4 10:57:54 2004: card_startup.x : card is starting up

```

```
Thu Mar 4 10:57:54 2004: Anafa2Init: a2update set to IGNORE
Thu Mar 4 10:58:16 2004: Anafa2 POST: firmware check PASSED
Thu Mar 4 19:01:55 2004: POST: SEEPROM: PASSED
Thu Mar 4 19:01:55 2004: POST: FPGA: PASSED
Thu Mar 4 19:01:55 2004: POST: SUMMIT: PASSED
Thu Mar 4 19:01:56 2004: POST: RTC: PASSED
Thu Mar 4 19:02:00 2004: POST: FAN: PASSED
Thu Mar 4 19:02:00 2004: card_startup.x : card is starting up
Thu Mar 4 19:02:00 2004: Anafa2Init: a2update set to IGNORE
<output truncated>
```

You can also view POST error codes with the **show diagnostic post** command. This command displays the results of each POST that executed at power-on.

```
SFS-7000P# show diagnostic post
```

Post Status		
fru-slot	post-status	error-codes
card(1)	failed	1:0:0:0
fan(1)	passed	0:0:0:0
fan(2)	passed	0:0:0:0
power-supply(1)	passed	0:0:0:0

Step 2 Display FRU errors on your Cisco SFS 7000P switch by entering the **show diagnostic fru-error** command.

```
SFS-7000P# show diagnostic fru-error
```

Fru-Error	
fru-slot	fru-error
card(1)	_FRU_POWER_CONTROLLER_CONFIG_ERR
fan(1)	none
fan(2)	none
power-supply(1)	none

Table 5-1 lists the hardware errors that are logged for the power supply.

Table 5-1 ***Cisco SFS 7000P Power Supply Errors***

Error Number	Description
1	Power supply DC fail error
2	Power supply fan fail error
3	Power supply I2C communication error



Specifications and Compliance Certifications

This appendix describes the Cisco SFS 7000P switch specifications and compliance certifications.

Chassis and Management Interface

[Table A-1](#) lists the general specifications for the chassis.

Table A-1 ***Chassis and Management General Specifications***

Item	Specification
Operating temperature	0 to 45°C
Nonoperating temperature	-40 to 70°C
Operating temperature gradient	20°C max. per 60 minutes
Operating altitude	0 to 10,000 feet
Nonoperating altitude	0 to 40,000 feet
Operating humidity:	8 to 80% non-condensing
Nonoperating humidity:	5 to 90% RH at 65°C for 24 hours, non-condensing
Operating humidity gradient	10% maximum per 60 minutes

Table A-1 **Chassis and Management General Specifications (continued)**

Item	Specification
Operating shock	5 G max., 11 ms half-sine wave, 10 G max. 5 ms half-sine wave
Nonoperating shock	10G max., 11 ms half-sine wave.
Operating vibration, sinusoidal	0.25 G max., 3-200Hz 15 minutes
Nonoperating vibration, sinusoidal	0.50 G max., 3-200Hz 15 minutes
Nonoperating vibration, random	2.09 Grms, 3-axis, bottom/top, left/right, front/back
Max. operating inclination	15 degrees
Physical Characteristics	
Dimensions	1 RU, fits in standard 19-inch rack
Weight	Maximum weight is 22 pounds (10 kg)

Electrical Specifications

[Table A-2](#) lists the electrical specifications for the chassis.

Table A-2 **Electrical Specifications**

Category	Specification
AC input	Auto-ranging 90 to 264 VAC, 47 to 63 Hz.
Power consumption	Less than 65 W



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